UNIVERSITI PUTRA MALAYSIA

SUPPLY RESPONSE OF THE PADDY SECTOR IN WEST MALAYSIA - AN ECONOMETRIC ANALYSIS

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by

Virgilio T. Villancio

A thesis submitted in partial fullfilment of the requirements for the degree of Master of Science in the Faculty of Economics and Management, Universiti Pertanian Malaysia

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Didicated to Blessie and my family

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CONVERSION TABLE

400 gantang paddy = 1 ton paddy
1 acre = 0.40469 hectare
1 picul = 60.5 kilogram
1 ton = 1.016 metric ton
1 kati = 1.33 lbs.
1 metric ton = 2204.6 lbs.

An abstract of the thesis presented to the Senate of Universiti Pertanian Malaysia in partial fullfilment of the requirements for the degree of Master of Science.

SUPPLY RESPONSE OF THE PADDY SECTOR IN WEST MALAYSIA - AN ECONOMETRIC ANALYSIS

by

Virgilio T. Villancio

June, 1988

Chief Supervisor : Dr. Mohd. Ghazali bin Mohayidin

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Faculty : Economics and Management

Paddy production in West Malaysia showed impressive growth in 1967-73 with an annual growth rate of seven (7) percent. However, despite the increasing intervention of the government in the rice sector, paddy production in 1974-84 decreased with the highest decline in 1981-84 at an annual rate of 6.3 percent.

This study is conducted to describe the pattern of supply response of paddy producers in West Malaysia for the period 1966-84 and to evaluate the impact of changes in the level of price support and subsidy, fertilizer subsidy and retail price of rice on total domestic paddy output with 1980-84 as the base period. The Nerlovian Adjustment Model (NAM) is used to describe the paddy area and yield response to various formulation of the

paddy, rubber and input prices, damage variable as a proxy for risk, dummy for unusual years, and lagged paddy area and yield. The estimated area planted and yield equations are used to estimate the paddy output and to evaluate the impact of price policy changes.

The results show that paddy farmers in West Malaysia responded to relative changes in the price of paddy in relation to prices of consumer goods, rice, rubber, and fertilizer. The short-run elasticities of area planted with respect to the paddy-rice price ratio for West Malaysia are -0.261 during the main season and -0.726 during the off-season. Given a more responsive acreage during the off-season, government programs to improve the production conditions during the off-season could be appropriate.

Results of policy simulation involving changes on the input and output price policy favored a policy which lessens the difference between the farm and retail price. A reduction in the GMP at $M10 per 100 kg of paddy results to 17 percent increase in paddy output while an increase in the retail price at the same magnitude results to five percent increase in paddy output. Furthermore, partial withdrawal of the fertilizer subsidy scheme does not have significant effect on domestic paddy output.

Abstrak tesis yang dikemukakan kepada Senat Universiti Pertanian Malaysia sebagai memenuhi sebahagian daripada syarat-syarat untuk mendapatkan ijazah Master Sains.

GERAKBALAS PENAWARAN DALAM SEKTOR PADI DI SEMENANJUNG MALAYSIA - SATU ANALISIS EKONOMETRIK

oleh

Virgilio T. Villancio

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Pengeluaran padi di Semenanjung Malaysia menunjukkan pertumbuhan yang menggalakkan dari tahun 1967 ke 1973 dengan kadar pertumbuhan tahunan sebanyak 7 peratus. Walaupun penglibatan kerajaan dalam sektor beras semakin bertambah, pengeluaran padi dari tahun 1974 ke 1984 semakin berkurangan. Penurunan yang tertinggi berlaku dari tahun 1981 ke 1984 pada kadar 6.3 peratus setahun.

Objectif kajian ini adalah untuk menerangkan corak gerakbalas penawaran pengeluar-pngeluar padi di Semenanjung Malaysia dari tahun 1966 ke 1984, dan; untuk menilai kesan perubahan dalam paras sokongan harga dan subsidi, subsidi baja dan harga runcit bagi beras ke atas jumlah pengeluaran padi tempatan dengan menggunakan 1980-1984 sebagai tempoh asas. Model "Nerlovian Adjustment" (NAM) telah digunakan untuk menerangkan

luas kawasan padi dan gerkbalas hasil kepada berbagai formulasi harga padi, getah dan input, angkubah kerosakan sebagai proxi untuk risiko, angkubah patung untuk tahun-tahun yang luar biasa, dan; keluasan padi jeda (lagged) dan hasil. Angaran keluasan yang ditanam serta persamaan hasil digunakan untuk menganggar keluaran padi dan untuk menilai kesan terhadap perubahan kepada polisi harga.

Keputusan menunjukkan bahawa petani-petani padi di Semenanjung Malaysia bertindak secara rasional terhadap perubahan relatif dalam harga padi berhubungan dengan harga barangan pengguna, beras, getah dan baja. Keanjalan jangka pendek luas kawasan yang ditanam yang berkaitan dengan nisbah harga padi-beras untuk Semenanjung Malaysia adalah -0.261 dalam musim utama dan -0.726 diluar musim.

Keputusan simulasi perubahan-polisi harga input dan output menunjukkan kebaikan polisi yang mengurangkan perbezaan di antara harga ladang dan runcit. Pengurangan dalam GMP sebanyak M$ 10 bagi setiap 100 kg akan menambalikan penngeluaran padi sebanyak 17 peratus, sementara pertambahan dalam harga runcit dalam kadar yang sama akan menambalikan pengeluaran padi sebanyak 5 peratus. Selain daripada itu, penarikan sebahagian daripada skim subsidi baja tidak akan memberi kesan yang bererti ke atas pengeluaran padi tempatan.

CHAPTER I

INTRODUCTION

THE IMPORTANCE OF THE RICE SECTOR

The rice sector assumes an important role in Malaysian agriculture and economy as a whole - economically, socially and politically. The importance of the sector can be traced on its various characteristics. Firstly, Malaysia depends heavily on rice as a major staple food. About 50-60 % of Malaysian's per capita calorie intake are obtained from rice and about 24 percent of the expenditures on food items is for rice (Wan Ibrahim, 1986). Hence, assuring the Malaysian consumers of adequate rice supply at all times has become the primary objective of government rice policy.

Secondly, the rice sector of the West Malaysian economy has a high incidence of poverty with 54 percent of household engaged in paddy production are considered to be poor in 1983 (Table 1). The incidence of poverty is mainly attributed to small landholdings and low return in paddy farming. Despite the fact that paddy areas occupy only about 13 percent of the total cultivated area in West Malaysia (Table 2), paddy production accounts for approximately 20 percent of the total employment in

TABLE 1

INCIDENCE OF POVERTY AMONG PADDY FARM HOUSEHOLDS, WEST MALAYSIA, 1970-83.

SECTOR	1970	1975	1980	1983
Total number of household ('000)	140.0	148.5	145.0	138.9
Total number of poor household ('000)	123.4	114.3	76.4	75.0
Incidence of poverty(%)	88.1	77.0	52.7	54.0
Percentage among poor	15.6	13.7	12.0	10.5

Source: Fourth Malaysia Plan, 1981-85 and Mid-term Review of the Fourth Malaysia Plan, 1981-85.